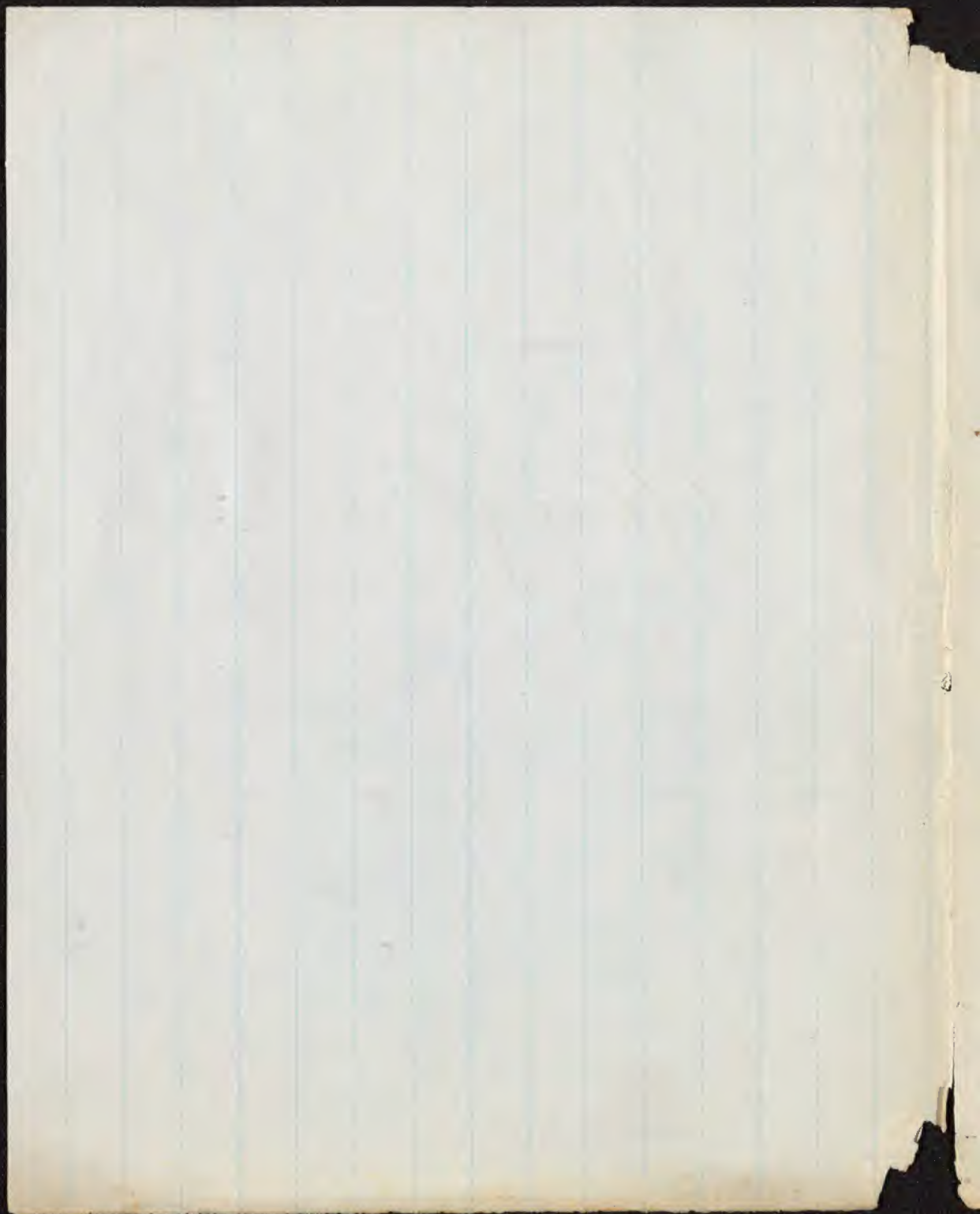
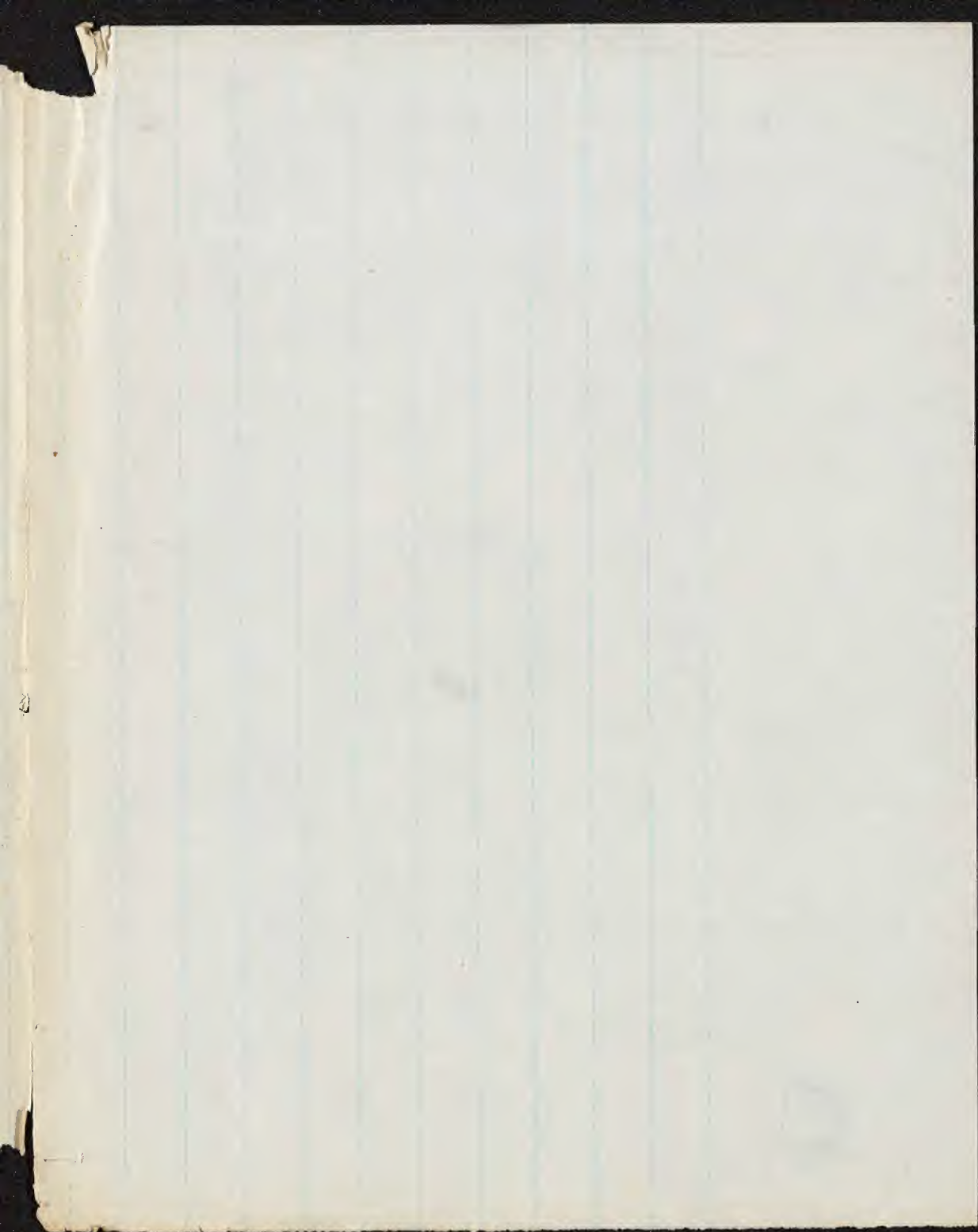


2

Atmosphere.







SUSPENDED  
MATTER.

COMMON  
SALT.

ORGANIC FORMS.

VERY  
NUMEROUS.

MITCHELL'S  
FUNGUS OF  
THEORY OF  
FEVERS.

ITS  
REVIVAL.

in the air

near the sea.

Suspended matter is either mineral or organic

Common salt is ~~very~~<sup>almost</sup> abundant,  
Other salts are <sup>occasionally</sup> present; also, steel filings,  
cotton fibres, &c. from manufactories.

Organic forms also, are met with. The microscope detects germs, ova, &c. If we look at a line of sun-light we will see the innumerable quantity of suspended objects. Tyndall D.D.

We breathe and drink and eat  
millions of living creatures constantly.

In the blood of the sheep, bacteria are found, suggesting that diseases may perhaps be caused in this way in human beings. ~~the~~ Vibriones, &c. also. ‡

proposed his fungus theory of fevers.

This theory was renewed by Salisbury of Ohio. <sup>The same physician</sup> ~~He~~ <sup>also</sup> ~~proposed~~ <sup>proposed</sup> that a fungus growth on damp straw causes measles. <sup>like vaccination</sup> He ~~proposed~~ <sup>proposed</sup> preventing measles by giving this fungus disease, just like vaccination.





Dr. Woodward.

ORGANIC CELLS  
EPITHEMAL "  
PUSS "  
STARCH CORPUSCLES  
SC.

MICROSCOPICAL  
EXAMINATION

~~that by a plate has been shown~~  
~~observation of a number of malarial microphytes (Siph., gamet.)~~  
Dr. Woodward repeated these experi-  
ments, but could not confirm them.

The air of rooms, contains def-  
inite organic forms: - organic cells,  
starch corpuscles, epithelial cells, &  
in hospitals, pus cells. - Eiselt, Poulet, &c.

In examining the air, we have  
a clean tube and direct a jet of air  
on a glass plate moistened with  
on "life in the atmosphere" which is instantly put un-  
der the microscope.

Living fungi hospital gangrene, and  
supposed to be caused by

No. 1016 Oct. 10, 1863  
"1" the need of thorough  
"Disease-forms."

Samuelson's observa-  
tions on rag & their dust, from  
Alex'ia - Japan - Melbourne  
Tunis - Trieste - Peru &c.

Conclusions - 1. atmosphere is  
everywhere charged with spores  
of man, veg, & anim. nature,  
including spores & germs of  
animalcules, & sometimes the really  
forms of nematoid worms.

2. The infusoria comprise not  
only monads, vibriones, bac-  
teria, but also glaucina, cy-  
clopoid vorticella &c. - Acarus Crossii -  
incorrect. If examined







~~that the laboratory has announced~~  
~~the existence of a number of malarial microphytes (Seph. germ.)~~

DR. WOODWARD.

Dr. Woodward repeated these experiments but could not confirm them.

ORGANIC CELLS  
EPITHEMAL "  
PUSS "  
STARCH CORPUSCLES,  
SC.

The air of rooms, contains definite organic forms: - organic cells, starch corpuscles, epithelial cells, & in hospitals, pus cells. - Eiselt, Pouchet, &c.

MICROSCOPICAL  
EXAMINATION.

In examining the air, we have a clean tube and direct a jet of air on a clean plate moistened with glycerin, which is instantly put under the microscope.

ERYSIPELAS,  
HOSPITAL  
GANGRENE,  
PHTHISIS.

Erysipelas, hospital gangrene, and phthisis are supposed to be caused by these cells suspended in the air.

Hence the need of thorough ventilation. <sup>an added reason for</sup> "Disease-germs."

ORIGIN OF  
THESE  
INFUSORIA

The origin of these infusoria is not well settled. <sup>quite</sup> If <sup>infusoria, as they</sup> an ~~infusoria~~ <sup>infusoria</sup> be put in a warm place for two or three days, it will be found to contain many more animals than at first. Hence arose the idea of "spontaneous generation." <sup>spontaneous generation</sup> "Acarus Crossii" <sup>almost certainly</sup>

SPONTANEOUS  
GENERATION.

This is incorrect. If examined

D  
I  
S  
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N  
F  
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C  
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A  
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T  
S.

Disinfectants.

Fresh Air.

Abundant Water

Charcoal, Wood tar,

Line

Dark Earth, Coal tar

Nitrate of Lead. (Leadogeni),

Sulphate of Iron.

Chlorine: chloride of soda (Labarraque's)

chloride of lime, chloride of

zinc (Labarrague) (Bunnetts).

Permanganate of Potassa (Condy's),  
N.B.

Nitroso-nitric acid.

Sulphurous acid.

Carbolic acid (Kidgewood's, McDougall's, Gorme & Demeaux),

Iodine,

Bromine,

Ozone.

Heat, and

Gold.

\* Done, 1867,  
recanted after a  
decided negative experiment  
of his own.

Chloral

of 15<sup>th</sup> Lecture, 1870

[End of 3<sup>d</sup> Lecture, 1872]

25



to contain  
germs are  
let alone also.  
? but there  
Redi and  
Harvey  
that every  
from another  
manipulation.

sources of

From 12  
brother  
ct. 5 pr. ct.  
30 grs. of  
This  
chemically

1867. Journal of the  
containing 2 or 3  
Life - no germ development in  
of his materials, could not be  
Kymen after 5 hours

nitrogenous and forms ammonia,  
darkening  $SO_2$  and decolorizing per-  
manganate of potassium. This latter  
is therefore a good test. In testing,  
1 gr. of organic matter is equivalent  
to 1 gr. of sugar.

The odor in a room becomes

TRUE  
THE

RESPI

EXHAL

TEST.

Donné of Paris asserts

Successful experiments in air necess. to veg.

Spontaneous generation: water in animals.

Bullet. de l'Acad. des

Sciences - Arch. En. de Med.  
Oct 1866. Afterwards recanted, 1868.

Pasteur denies, showing room  
for error, in the manipulations.

Ozone,  
Heat, and  
Cold.

[End of 3<sup>d</sup> Lecture, 1872]

End of 15<sup>th</sup> Lecture



very minute,

probably

the <sup>seeds</sup> would be found to contain  
1 W.D. 2 agree that germs are

TRUE  
THEOR

Against all the <sup>Pouchet</sup> doubts it? but there  
"spont. gen." <sup>Pouchet</sup> ~~spont.~~ <sup>Domest.</sup> ~~spont.~~ <sup>also.</sup>  
it is said that every  
is formed from another  
Difficulty in manipulation.

spores  
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100

of such manipulation  
as to exclude, at  
some stage or other,  
all "aerobes" or  
aerophyta, or their  
ova or spores.

RESPIRA  
EXHALA  
A!

See Wynn's experiments.

causes CO<sub>2</sub>. From 12  
000 <sup>thru</sup> exist, 5 pr. ct.  
n. 16 pr. ct. in tank, same to be so.  
shales about 30 grs. of  
in 24 hours. This  
mell. It is chemically  
ammonia.

nitrogenous and forms ammonia,  
darkening SO<sub>2</sub> and decolorizing per-  
manganate of potassium. This latter  
is therefore a good test. In testing,  
1 gr. of organic matter is equivalent  
to 1 gr. of sugar.

TEST.

The odor in a room becomes

For  
Abi  
Ch  
L  
D  
Ni  
Lu  
Ch  
  
Pe  
Ni  
Lu  
Ch

Pouchet — <sup>more</sup> lately,  
Donné, continued to  
assert spontaneous generation

Pasteur denies,  
(Donné has picked it up, 1868).

Darwin ascribes the  
rotting of fruit to micro-  
scopic fungi — which  
also may effect leaves &  
stems with decay.

over

asserts

in  
air necess. to veg.

water in animals.

Acad. des

J. M. D.

recanted, 1868.

how soon  
speculations.

Ozone,  
Heat, and  
Cold.

[End of 3d Lecture, 1872]

of 15th Lecture



very minute,

probably

spores and

the leaves would be found to contain  
ova <sup>scintillate</sup> ~~that~~ <sup>now</sup> ~~is~~ <sup>are</sup> that germs are  
necessary for generation. <sup>Pouchet</sup> ~~Some~~ <sup>also</sup>.

TRUE  
THEORY.

Wyman still doubts it? but there  
need be no hesitation that <sup>Pouchet</sup> ~~Redi~~ <sup>and</sup> ~~Harvey~~  
were right when they said that every  
living being is formed from another  
living being. Difficulties in manipulation.

[End 3<sup>d</sup> Lecture, 1872]

Lecture XVI

We ~~will~~ still consider <sup>further</sup> the sources of  
impurities in the air.

Respiration causes  $\text{CO}_2$ . From 12  
to 70 pts. in 10,000 <sup>after this</sup> exist; <sup>Less than</sup> 5 pr. ct.  
is fatal to man. <sup>16 pr. ct. continued, due to his so.</sup>

An adult <sup>Still with it</sup> exhales about 30 grs. of  
organic matter in 24 hours. This  
has a fetid smell. It is chemically  
nitrogenous and forms <sup>readily</sup> ammonia,  
darkening <sup>also</sup>  $\text{SO}_2$  and decolorizing per-  
manganate of potassium. This latter  
is therefore a good test. In testing,  
1 gr. of organic matter is equivalent  
to 1 gr. of sugar.

The odor in a room becomes

RESPIRATION.

EXHALATION  
OF  
ADULT

TEST.

Dr Angus Smith estimated the amount  
 of organic matter in pure air at 1 gr. in  
 200,000 cub. ft. In a house, 1 gr. in 16,000 to  
 64,000 c. ft. In close-packed s.r. car, 1 gr. in  
 8000 ft; In a house with some air in it, same.  
 Decolorized permangan. potassa — & darkens  $\text{SO}_3$  drawn  
 through it.

End of 24<sup>th</sup> Lecture, 1871.

Fochles  
 1



perceptible if not strong when ~~it~~ <sup>organic matter</sup> reaches 1 pt. in 1000.

DISEASES CAUSED BY IMPURITIES.

Contamination of the air, when long continued causes disease. Typhus fever is thus caused; though some say it is <sup>only</sup> caused by a special contagion. It occurs in camps, ships, and jails. The doubts are of recent origin.

TYPHUS FEVER

Typhus is produced by foul air, in colder regions, <sup>Typhus fever is less frequent</sup> than ~~unlike typhoid~~. In Great Britain & Ireland it is very common where poverty, low temperature, bad air &c. abound.

ITS CAUSE.

~~It~~ is caused by the concentration of emanations from human beings. After it is once produced, it is contagious. One who has it, has the poisoning power of a crowd of healthy persons. <sup>travels to jails court-rooms.</sup>

HISTORICAL CASES.

In 1577, there were 500 typhus deaths in England. In 1750, four judges, and others, in all, about 40,





died from the air of the court  
rooms, at the periodical assizes. <sup>+</sup>

TYPHOID.

It has been doubted whether ty-  
phoid is caused by foul air. <sup>+</sup>

already said

In this country we have it  
in all climates, at all times.

TWO  
STAGES.

Typhoid is not contagious.  
It has in its causation, a per-  
sonal element, perhaps hereditary  
as in phthisis

It requires some exciting cause,  
as absence from home. Foul air  
promotes it.

EFFECT  
OF FOUL AIR  
ON IT.

Foul air tends to <sup>increase the malignity of</sup> produce all en-  
demics & epidemics. This is illus-  
trated in foundling hospitals. In  
London, out of 10 <sup>in 4 yrs; after good ventilation, reduced to 300 in same time.</sup> <sup>are wisely resolved, for the period of</sup> <sup>to come, to decline all applications for</sup> <sup>on of strange children into their institu-</sup>

CASE MENTIONED  
BY  
RICHARDSON.

Richardson me-  
in which one died  
The rest of the  
from the house  
after (3 weeks) w  
He died likewise  
thoroughly clean

CAMDEN ITEMS.

MASONIC.

ving Masonic lodges have elected their  
he ensuing year:—Camden Lodge, No.  
Hardacre, W. M.; Allen M. Powell, S.  
w B. Frazee, J. W.; James H. Stevens,  
ames M. Cassady, secretary. Trimble  
17—George F. Fort, W. M.; M. B. Tay-  
Nathan F. Cowan, J. W.; H. G. Taylor,  
G. Milligan, secretary. Siloam H. R.  
No. 19—Henry U. Homes, High Priest;  
rdacre, King; N. F. Cowan, Scribe;  
roth, treasurer; George Shattuck, sec.

GRAND JURORS.

wing gentlemen have been selected by  
dericks as grand jurors for the January  
he Camden county courts:—Casper F.  
Robert C. Cook, Joseph J. Read, Chas.  
David Hutton, James Elwell, Isaac  
Armstrong Lapp, Joseph Sharp, John  
Oster, Josiah

Scarlet fever. — most in close quarters; may still be

↑  
 ↑  
 Murchison — <sup>latter called</sup> pythogenic fever

In N. Y. & Brooklyn, 1872, Spitzerforn  
 So accounts for — Gschler Spitzerforn in a few days

↑  
 ↑  
 in five days —  
Cholera arrested in Blackwell's Island N. Y., 1866, by Dr. Hamilton  
 & other London doctors, by turning the men out & ventilating thoroughly

↑  
 ↑  
Island of St. Kilda, of North Hebrides  
enormous mortality of infants — trismus neonatorum

from the Spectator of to-day:—

It appears to be gradually becoming certain that the Prince and Lord Chesterfield were attacked by the fever during the visit to Lord Londesborough. It appears that the Prince slept in a room into which a closet opens, and the closet communicates with a cesspool ten feet below which has not been cleansed for six years, and this very room was occupied by Lord Chesterfield after the Prince's departure. There is also evidence that there was a back draft of sewer gas up the sewers, and the Lancet believes that the air of Londesborough Lodge, which was at the time excessively crowded both with guests and servants, was "really tainted." As the male guests usually retired to rest fatigued with a long day's sport they were just in the condition to imbibe the poison, the smell of which, adds the professional journal, would not of necessity have been perceived in a house "pervaded by odors of a more agreeable kind," that is, we suppose, by the smell of tobacco smoke. The facts are, of course, most annoying for Lord Londesborough; but he did all he could to insure the salubrity of his house, and is not to be blamed because the plumbers were, as usual, not to be trusted for anything except their charges. If we could hang one of them for murdering a Prince the world would be an improved place to live in.

to live in close huts with manure fumes.



died from the air of the court  
rooms, at the periodical assizes. <sup>+</sup>

TYPHOID.

Already said

It has been doubted whether ty-  
phoid is caused by foul air. <sup>+</sup>  
In this country we have it  
in all climates, at all times.

TWO  
STAGES.

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It has in its causation, a per-  
sonal element, perhaps hereditary  
as in phthisis

It requires some exciting cause,  
as absence from home. Foul air  
promotes it.

EFFECT  
OF FOUL AIR  
ON IT.

It requires some exciting cause, as absence from home. Foul air promotes it. - increase the malignity of  
Foul air tends to produce all en-  
demics & epidemics. This is illustrat-  
ed in foundling hospitals. In  
(in 4 yrs) after good ventilation reduced to 300 in same time.  
London, out of 1000, 2000 died.

CASE MENTIONED  
BY  
RICHARDSON.

Richardson mentions a family  
in which one died of scarlet fever.  
The rest of the children were kept  
from the house for a good while  
after. (3 weeks) when one returned.  
He died likewise. The house was  
thoroughly cleaned out and

Scarlet fever - work in close quarters; may stick to a house.



Dent is in secondary position  
 when seen in the dent, is in this position  
 the one the always to be detected and restored.

Callender, at St. Bartholomew's, 1872-3, found a  
 remarkable improvement in the results of operations, after  
 substituting carbolic acid for sponges in  
 all cases.

Hospitalization

Substituting carbolic acid for sponges in all cases.

Operative dentures

to dentists  
 children: - e.g. by Liston

absolute  
 by Liston

15th Lecture 1868

End of

continuous molecular change. (Butter making)

Septic process

Septic and - septic matter

Dissecting wounds - Scarcity of carbolic acid

carbolic acid

Haemorrhage - fair

putrescent matter injected into pentonum of an animal



→ <sup>relapsing fever</sup> Malaria, small pox, cholera, typhoid fever, all  
 greatly worst in ill ventilated streets & in close foul houses  
 whitewashed. Another returned & died. It seemed as if no cleaning  
 would prevent it. The reason was that it was on low ground <sup>low-lying</sup>.

PARIS HOSPITAL.

②

In a ~~hospital~~ hospital in Paris, hav-  
 ing four departments, three of  
 them had erysipelas and one had  
 not. It was better ventilated than  
 the others. Dr. Harlow's experience at Nashville.  
 Experience in tent hospitals - no dysentery & no pyæmia.  
 PULMONARY COMPLAINTS: phthisis,  
 bronchitis, pneumonia, prevail  
 in foul air especially.

PULMONARY COMPLAINTS.

①

PHTHISIS.

Phthisis was so frequent in the  
 British navy, that the subject was  
 investigated and it was attribut-  
 ed to over-crowding: same in army, barracks.

EXHALATIONS FROM SICK.

③

Bells may pass and cause it  
 The exhalations from sick are  
 worse than from the well. Flies  
 congregate more in an hospital  
 around a dying man. Urine-charges.

SEWAGE

Sewage often accounts for  
 the bad health of certain portions  
 of a city. Sputa of phthisis (Watson) attract flies  
 more than other excretions. Sewer gas & excreta  
 of flies.



[End of the Lecture, 1873.]

\* I know of a case where scarlet fever occurred in some of the inmates of a house, from which one of the children was absent & escaped the disease. This child did not return to the house for a year. At the end of that time returning home, that child was soon attacked with scarlet fever & died of it.



DIFFICULTY  
OF  
REMOVING  
SMELLS

It is sometimes impossible to get rid of emanations from sick. They are absorbed by the bedding, furniture, walls, &c.

Dr. Hammond <sup>one of the</sup> states that <sup>in New York</sup> a certain hospital <sup>many cases of hospital</sup> having gangrene, was cleaned; but <sup>the disease</sup> in vain. It returned as soon as more patients came; till the Hospital was torn down & rebuilt.

VENTILATION  
AND  
SUNSHINE

~~Harlowe says that ventilation and sunshine remove diseases.~~

PENNA. HOSPITAL.

in 1840  
2-50

ABSORPTION  
OF  
ORGANIC  
MATTER.

In the Obstetric department of the Penna. Hospital, puerperal fever was <sup>repeatedly</sup> prevalent and could not be removed - & given up - <sup>one of the</sup> <sup>Society</sup>

Organic matter is absorbed by water, wool, feathers, <sup>clothes, bedding, carpets</sup> <sup>smooth</sup> straw, horse-hair & <sup>smooth</sup> walls, absorb it least.

PAINTING

Painting is good, if there are no cracks. ⊕

TEST  
OF EMPTY  
ROOM.

Dr. Hammond tested an empty room, which had contained sick men and <sup>was</sup> afterwards ventilated,

Barrack Hospitals!

10 year lasty —  
(Brechin etc)

End of 16<sup>th</sup> Lecture 1867

Began to use my original notes at this place.



and he found undoubted evidence that organic matter still remained. <sup>Chalvert, in Paris, reports the amount of inhabited</sup>

WHITEWASHING.

Whitewashing should be renewed <sup>(Doubt) into as high as 30 percent.</sup>

WALL-PAPER.

Wall Paper absorbs organic matter.

Repapering, without taking off the old paper, is very unhealthy.

CALCIMINING.

Calcimining is very good.

PARIAN CEMENT.

Parian cement and several liquid stone preparations are now used. Some ~~put~~ to impermeable walls.

(?) From 36 to 46 per cent of organic matter has been found in a hospital ward, by Chalvert, in Paris.

OPHTHALMIA.

Among diseases conveyed by cells, <sup>gonorrhoea, for the puerulent</sup> is ~~is~~ ophtalmia. X

COMBUSTION.

Combustion injures the air.

Solid carbon is thrown into it.

LONDON

(God of coal) In London, the fogs are <sup>sometimes</sup> so thick, that a person can not see a few feet ahead.

CO<sub>2</sub>.

CO<sub>2</sub> is rapidly diffused <sup>in the open air</sup>, so that not much difference can be observed between cities and the country.

One cubic foot of gas in burning will  
 consume the oxygen of <sup>to 15</sup> 8 cubic feet of air,

1872, I forgot to name among the impurities of gas,  
 carbonic oxide, and bisulphide of carbon;  
 both of which make it more poisonous.

Hammond says One good gas-burner will  
 produce as much  $\text{CO}_2$  as 8 men in breaths the  
 same length of time. Leeds (Leet. or Ventila.) states  
 the spoiling of air, by consumption of O & increase of  
 $\text{CO}_2$ , by one burner, = that of 11 men. Cameron  
 puts it = that of 3 men! But he calculates only  
 the oxygen taken, apparently not the  $\text{CO}_2$  added to it.



Other products of combustion are sulphurous acid, carbonic oxide, sulphuretted hydrogen, &c.

One pound of coal requires 240 cub. feet of air. A lamp requires 3 cub. ft. per <sup>hour</sup> ~~per~~ <sup>1000</sup> ~~hour~~ <sup>of carburetted hydrogen gas.</sup> Burning-gas also requires <sup>like considerable</sup> an amount of air. People often get head-ache from stoppage of circulation of air.

The very worst contamination of air is sewer gas. The London sewers give off from one to one & a half cubic inches of gas per hour. Rapid asphyxia is often caused. There was a case of 23 children, of whom two died, who had asphyxia from the opening of a privy. <sup>I saw one man die.</sup>

Sewer gas consists of carbonic acid, sulphuretted hydrogen, <sup>phosph. hydrogen,</sup> carb-  
bo-ammoniacal gases, &c.

Sewer men are said to be liable to typhus, & ophthalmia.

Sewer openings near houses,

AMOUNT OF  
AIR  
REQUIRED  
FOR  
COMBUSTION.

SEWER  
GAS.

ASPHYXIA.

COMPOSITION  
OF  
SEWER GAS.

SEWER  
MEN

In the summer of 1875, four men  
lost their lives by going down a well  
& taking a privy not to it: asphyxia.

Prince of Wales' case, typhoid fever, Nov. 1871  
 at Scarborough (Londesborough Lodge) - water-  
 closet in his room commun. with badly drained  
 sewer.

National Hotel epidemic at  
 Washington, 1856. Low site, leak of sewer  
 air into heater and chamber - contamination of air  
 & water of the hotel. Severe dysentery - in few  
 instances fatal - in several chronic & obstinate.

Dissecting room dysentery.

Typhoid fever in Philada. (See Dr. B. Lee's report)  
 most destructive where water & air are hurt by sewers;  
 Kensington & Richmond, near Delaware - &c.

[Sewer men: see Med. News Sheet]

End 15th Lecture 1869